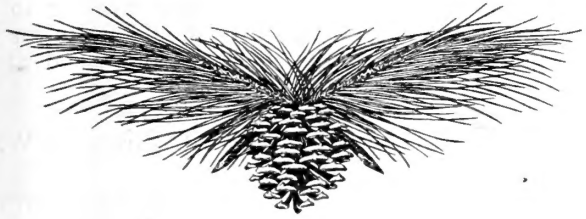
FOREST WORKER



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UNITED STATES DEPARTMENT OF AGRICULTURE

CONTENTS

Announcements

American Forest Week

American Forest Week of 1927 will be observed April 24–30, the same period chosen for the observance in Canada of "Save the Forest Week."

National 4–H Club Camp

The first National 4–H Club Camp is to be held in Washington, D. C., on the grounds of the Department of Agriculture, June 16–22, 1927. Two boys and two girls, with one or more State leaders, may be sent by each State. Children attending the camp must have done at least three years' club work. Their expenses will be paid by the States or by nonofficial organizations within the States.

Prizes for Improved Practice in Mill and Factory

The Timberman has announced a series of prize contests to stimulate interest in improved mechanical practice in sawmill, planing mill, box factory, and veneer plant operation. In each of six contests three cash prizes are offered, of $25, $15, and $10, respectively. The contests are open to anyone connected with a firm manufacturing forest products. They will close March 15, 1927. The scope of the six contests is as follows: (1) Improvements in sawmill practice; (2) Improvements in sawmill planing mill practice; (3) Improvements in stock moulding and finish planing mill practice; (4) Improvements in detail planing mill practice; (5) Improvements in box factory practice; (6) Improvements in veneer factory practice.

Anyone wishing to enter one of these contests should write for particulars to The Timberman, published at 616 Spalding Building, Portland, Oreg.

Cash Prizes for Ways to Prevent Waste

Another waste-prevention contest supplemental to that being conducted by the National Lumber Manufacturers' Association has been announced by the Hardwood Manufacturers' Institute of Memphis, Tenn. Cash prizes of $75, $50, and $25 are offered to the men employed by members of the institute in hardwood logging or milling operations who submit the three best original devices or methods of operation that will decrease waste in the logging or milling of hardwoods, improve the quality of the mill output, or reduce logging and manufacturing costs.

Research Fellowships at Yale

A series of research fellowships available for work in certain phases of forestry has been announced by Yale University. Senior fellowships paying from $1,000 to $2,500 or more for the school year are open to graduates of approved colleges and universities having the Ph. D. degree or such training and experience as are indicated by this degree. Candidates for the junior fellowships, which pay from $1,000 to $1,500, must be well advanced in work toward a Ph. D. degree or similarly qualified.

Because the edition of this periodical is necessarily limited, its free distribution outside of the Government service is restricted to such persons and organizations as State forestry and conservation officials, State agricultural extension directors, faculties and libraries of forest schools, and forestry associations. Others desiring to obtain copies of the Forest Worker can do so by sending 5 cents for a single copy or 25 cents for a year's subscription to the Superintendent of Documents, Government Printing Office, Washington, D. C. Foreign subscriptions: Yearly, 35 cents; single copies, 7 cents.

Material offered for publication in the Forest Worker should be addressed to the Editor, U. S. Forest Service, Washington, D. C.

FOREST WORKER

Washington, D. C. JANUARY, 1927 Vol. 3, No. 1

State Forestry

Forestry Amendments to State Constitutions

In the elections of November, 1926, California, Minnesota, and Louisiana amended their constitutions with a view of encouraging reforestation. The California amendment relieves of taxation immature forest trees planted on land not previously bearing commercial timber, or planted or natural growth on timber land from which 70 per cent of the merchantable stand over 16 inches in diameter has been removed. It classifies timber as immature up to 40 years of age and thereafter until it is pronounced mature by a representative of the State board of equalization, a representative of the State forester, and the county assessor.

The Louisiana amendment authorizes the legislature to fix the limit of the severance tax on forest products grown under reforestation contracts, grants three-fourths of this tax to the parishes, and extends the maximum contract period from 40 to 50 years. An act passed by the legislature at its recent session and validated by this amendment fixes the severance tax at 6 per cent of the stumpage value.

The Minnesota amendment authorizes the enactment of laws fixing a definite and limited annual tax on land bearing immature timber and a yield tax on forest products.

The reforestation amendment proposed in Washington failed of passage. This measure would have authorized legislation providing for either a yield tax only on timber grown under reforestation contracts or a yield tax combined with some other form of tax.

Texas Legislative Committee on Forestry Reports

The special forestry legislative committee appointed by the Governor of Texas in pursuance of a resolution passed by the State senate has completed its inquiry into conditions affecting the timber supply of the State and submitted its report and recommendations. The report is being printed in full in the November, December, and January numbers of the Texas Forest News, published monthly by the Texas Forestry Association. It reads in part as follows:

"With an original forest of virgin pine approximating 14,000,000 acres, there now remains less than 1,500,000 acres; and it is estimated that at the rate of present lumbering operations practically the entire acreage of virgin pine forests in the State will be exhausted in the next 10 or 12 years. The reproduction of timber of commercial value on the vast area that has been cut over, a great part of which is not considered suitable for any other purpose, has had but meager encouragement from the State. Nine-tenths of the original Texas pine area of 14,000,000 acres has been cut over. Less than 2,000,000 acres of this cut-over area is supporting a second-growth stand of pine, but much of this second-growth timber is small and will not attain merchantable size within from 15 to 25 years. An additional million acres contains a sparse stand of young trees. It is estimated that the young timber now growing on the cut-over lands will produce less than one-third of the lumber used by Texas citizens to-day. * * *

"* * * With the meager funds made available it has been possible for the State department of forestry to maintain a skeleton forest fire prevention force in a portion of the cut-over areas; collect data on forest conditions; and assist the farmers of Texas in connection with the management of farm woodlands or advisable tree planting. However, it has been out of the question to give adequate attention to the development of any line of forestry endeavor. * * *

"* * * The farmers in the commercial timber belt of east Texas are vitally concerned in forestry progress, since they own 3,150,000 acres classed as forest land. In fact more than half of the land that has come back to second-growth timber in east Texas is owned by farmers. * * * The State is rendering assistance to the farmer along agricultural lines and should also assist the farmer in developing his forest property. * * *

"Another distinct line of forestry work pertains to the encouragement of tree planting in the treeless agricultural portions of Texas. A survey of the treeless agricultural portions of the State shows that the farmers have done much less along the lines of planting groves and windbreaks than have the farmers of Kansas, Oklahoma, Nebraska, and other plains States. * * * The State should foster tree planting of this character in every way possible.

Fire Loss Low in the Adirondacks and Catskills

Forest fire loss in the Adirondack and Catskill fire towns of New York was lower in the fire season of 1926 than in any other for which the State conservation commission has records. Of these areas totaling 7,270,000 acres only one-fiftieth of 1 per cent was burned over during the season. The average acreage per fire, likewise the smallest recorded, was 7 acres.

Pennsylvania Pushes Tree Planting

The State forest nurseries of Pennsylvania have 20,000,000 trees ready for distribution in 1927—twice as many as they have ever supplied in one year. On November 1, almost 9,000,000 of these had already been assigned. The 1,400 early applicants to whom they will go include residents of every county in the State, although the coal regions will take more than half.

In spite of the large early demand, members of the State forestry organization do not assume that they will find homes for all the 20,000,000 little orphan trees without special exertion. District Forester C. C. Hogeland, of Driftwood, has sent a personal letter to every school teacher and every permanent lessee of a camp site on the State forests in his district, reminding them that the trees are available and inclosing an application form. District Forester H. A. Smith, of Pottsville, is offering prizes of ornamental trees for school-ground planting to each school in Northumberland County that sends in applications for trees to plant 2 or more acres of idle forest land, and is also giving special prizes to schools that collect the greatest numbers of applications, that give the greatest assistance to landowners, and that get the largest contiguous areas planted. District Forester T. I. Shirey, of Johnstown, is working through his fire wardens. District Forester R. L. Emrick, of Scranton, has enlisted the cooperation of the press so successfully that he expects to double the orders of his district, which already call for 500,000 trees. District Forester V. M. Bearer, of Ligonier, every two weeks publishes in the newspapers the number of planters and the number of trees represented by the orders he has collected, and has already reported the granting of 509,450 trees to 87 planters.

Indiana Purchases Land for Forestry Purposes

The Indiana Department of Conservation has recently purchased about 12,000 acres of forest land in southern Indiana for forestry and game refuge purposes. In Brown County 11,000 acres of mountain land, at $10 an acre, has been purchased from the proceeds of fish and game licenses and placed under the supervision of the division of fish and game. About 500 acres of old fields included in this area will be reforested with coniferous seedlings supplied from the State tree nursery. The Clark County State Forest, Henryville, is being enlarged by about 1,000 acres, including 30 acres of virgin oak timber.

A new nursery site of 12 acres is being developed at the Clark County State Forest, in an effort to meet the rising demand for forest planting stock. The division of forestry hopes by 1929 to be producing a million seedlings a year.

Vermont Fire Damage Reduced

Vermont was extremely fortunate in 1926 in regard to loss by forest fires. During the year there were 73 fires, which burned over an area of 906 acres and caused damage amounting to approximately $3,469. The average annual area burned over in Vermont since 1908 is 3,156 acres, therefore this year's loss is about one-third of the average. The decrease was largely due to the abundant precipitation during the fall months and to the prompt action of the town forest fire wardens.

Another State Forest in Vermont

A gift of 206 acres of forest land has been received by the State of Vermont from Miss Mary E. Waterman of Williamstown, Vt. The tract, which is to be known as the Ainsworth Forest Park, lies in the town of Williamstown, bordering the beautiful Williamstown Gulf Road for more than a mile. No cutting of trees is to be permitted within 50 feet of the road. Other parts of the tract will be used as a forestry demonstration area. This is the sixteenth State forest established in Vermont.

County Funds for Forest Protection

Duplin County, N. C., during the present fiscal year is devoting $2,500 to forest fire protective work in cooperation with the State Forest service. This appropriation follows one of $500 for the fiscal year 1926 and is the largest ever yet made by a county of North Carolina for this purpose.

Profit on Cedar Thinnings in New Jersey

Cedar swamp thinnings made in 1925 by the New Jersey Department of Conservation and Development netted more than $100 per acre profit in stumpage, although most of the trees cut were suppressed and were less than 4 inches in diameter at breast height. Medium light thinnings were made on the Lebanon State Forest in white cedar stands less than 50 years

of age, several thousand small poles being cut. This was the first thinning undertaken by the State's forestry division on a commercial basis. This fall and winter cedar thinnings are being continued on the Lebanon Forest on a much larger scale, poles and posts of all sizes being cut. In moving poles and logs from the swamps to auto trucks a trial is to be made of the use of a light car pushed by man power on a light portable steel track.

New York Plants Twenty Million

The final score for forest planting in New York State in 1926 shows the output of the State nurseries as 20,481,112 trees. This exceeds the combined production of 1924 and 1925. There was a remarkable increase in school forests, schools ordering more than twice as many trees as in the preceding three-year period. The number of municipal forests in the State grew during the year from 153 to 217, and municipalities received 2,482,900 of the trees distributed by the State. The State itself planted 5,058,950 trees.

Orders for young trees to be planted in the spring of 1927 which had been received by the conservation commission of New York up to November 17 totaled 5,500,000.

Sportsmen Plant a Million Trees

The silver reforestation cup offered to the organized game clubs of New York State by James S. Whipple, former conservation commissioner, was won by the Cortland County Sportsmen's Association. This club was responsible for the planting this year of 507,000 trees. The Shawangunk Fish and Game Association, Middletown, ranked second, with 128,500 trees, and the East Aurora Fish and Game Club was third with 117,550. Trees planted by other clubs entered in the contest brought the total to practically 1,000,000.

A memorial forest of 10,000 young white pines was planted by New York State on September 27 as its tribute to Gene Stratton-Porter. The site chosen for the memorial lies on the west side of the Tongue Mountain Peninsula, at the head of Northwest Bay, Lake George.

Muskegon County, Mich., has taken up reforestation as a major project. In 1925 it planted more than 150,000 spruce and pine trees, and its 1926 plantings exceeded 200,000.

An overhead sprinkling system has been installed at the Louisiana State Forest Nursery at Woodworth, La., which makes it possible to simulate a fine rainfall over a 4-acre nursery site. By nine hours' steady running it can produce the equivalent of 1 inch of rainfall.

Additions to the State forests of New Jersey within the last six months total 1,295 acres. The Stokes Forest was enlarged by 653 acres, the Lebanon Forest by 535, and the Bass River Forest by 107.

Education and Extension

Successful Essay Contest Adapted for American Forest Week

In a campaign to get the idle land in Schuyler County, N. Y., planted to white and red pines, Extension Forester Cope and County Agent Bond have this fall aroused much public interest through a public school essay contest. The subject assigned was "Why should we plant forest trees on the idle lands in Schuyler County?" All children attending district schools with not more than four teachers were eligible. The two school superintendents of the county wrote to all the teachers emphasizing the importance of the forestry problem and asking that pupils be encouraged to enter the contest. One month was allowed for the submission of essays. All essays were forwarded to the local farm bureau office, where they were reviewed by three judges. Prizes of $10, $5, and $3 were awarded in each of the three districts into which the county had been divided for the purposes of the contest.

In almost any community a forestry essay contest culminating at such a time that the prize winners may be announced and the prize essays published during the coming American Forest Week, April 24–30, 1927, would be one of the most interesting and helpful events of the week. The plan of the Schuyler County Farm Bureau Essay Contest is therefore given here, with suggestions by W. R. Mattoon of the United States Forest Service for adapting it to other communities:

Suggestions for Conducting a School Essay Contest in Forestry

Purpose.—To interest school children in ——— County in better forest protection and growth.

Prizes.—First, three each, value $10 (or $5); second, three each, value $5 (or $3); third, three each, value $3 (or $1). (Suggested values only; money to be raised locally.) Special prize for originality, $5 (or less).

(Books, subscriptions to magazines, or potted ornamental trees or shrubs make good prizes.)

Eligibility.—Any child in the public schools of ——— County in the ——— to ——— grades is eligible.

Rules.—1. Essays shall be on the subject. Suggested subjects: (1) How the forests of ——— County serve the people; (2) What is being done to protect the forests of ——— County and what more should be done; (3) Why we should plant forest trees in ——— County; (4) How we can use and enjoy the forests; (5) The important forest trees in ——— County; (6) My favorite tree in our woods at home.

2. The essay shall consist of not more than 500 words, and shall be written in ink on — by — inch paper, on one side of the paper only.

3. Each essay must be placed in a plain envelope bearing the name, age, school district, and address of the entrant.

4. The contest opens the ——— of ———, and closes the ——— of ———, 1927. (It is suggested that dates be so chosen as to make possible the announcement of the prize winners and the publication of the essays during American Forest Week, April 24–30, 1927.)

5. Each teacher shall forward all essays entered by his pupils to the farm bureau office (or other designated place) in ——— not later than ———, 1927.

6. For the purpose of awarding prizes the county shall be divided into three (or more or less) districts as follows:

No. 1. ———, ———, ———.
No. 2. ———, ———, ———.
No. 3. ———, ———, ———.

A first, a second, and a third prize will be awarded in each of these districts. A county-wide prize for the most original essay will also be awarded.

7. A committee consisting of (1) ——— ———, (2) ——— ———, and (3) ——— ——— will make the awards. In awarding the prizes consideration will be given to—

1. Grasp of the subject.
2. Logical and convincing presentation.
3. Composition and appearance of manuscript.

8. Information concerning these forestry topics may be secured by observation in the woods or from the local public library, the State forestry department, the extension service of the State college of agriculture, or the Forest Service, United States Department of Agriculture.

NOTE.—The announcement and copies of the rules should be sent out to the teachers by the county school superintendent, together with his personal recommendation of the contest.

Maryland Warden Organizes Junior Forestry Movement

A remarkably well planned junior forestry movement has been set afoot in Cecil County, Md., by District Forest Warden J. Fredrik Virgin. It began last spring with a series of illustrated lectures. Mr. Virgin, who as a clergyman is no stranger to the platform, talked in every high school and practically every large grammar school in the county, and visited, as he puts it, every grange, parent-teacher organization, and civic club he could get into. He found it comparatively easy to interest his audiences in forest conservation because the spring of 1926 was the worst fire season ever known in the district. This winter he is going over the ground a second time, in some places repeating his lectures, and training schoolboys as "junior foresters." Nothing more needs to be said of Mr. Virgin's abilities as a forestry propagandist than that both town and country boys are eagerly tackling a long series of requirements in the hope of being enlisted in his junior forest-protection army.

To be eligible for commission as a junior forester a boy must be 12 years old and in regular attendance at school (a few exceptions being made in favor of boys who have passed through the seventh grade and are working on farms). He must be able to identify at least 10 native trees, exclusive of domesticated fruit trees, by their shape, bark, leaf, and fruit; must know the forest laws of the State of Maryland as outlined in a synopsis furnished by the State department of forestry, something of the approved methods of fighting forest fires, and the names, locations, and telephone numbers of the two forest wardens nearest his home; and must submit an essay of 150 words on the value of trees to the community and the State. In addition he must have fair standing in school work, must be actively interested in athletics and outdoor sports, and must have a certificate of good behavior and character signed not only by one of his parents and his teacher but by two farmers living in his own community.

The commission bears the signature of the State forester, and the examination and pledge are made in his presence or that of his deputy.

The junior forester is expected to keep an active lookout for forest fires at all times, and particularly during the months of March, April, May, October, and November. If he finds a small fire that he can readily extinguish he is expected to do so, and he is to assist the forest warden in fighting large fires in his territory when this will not interfere with his school duties. He is to watch for violations of the forest laws. If he sees people unlawfully destroying trees or shrubs it is his duty to call their attention to the law and, if they disregard his warning, to report them to the forest warden and to the owner or tenant of the property. He is to assist the State forester in distributing forest fire warning signs whenver requested to do so.

The Maryland Forestry Department furnishes junior foresters with its monthly news letter and with those of its publications that will help them in their work. For exceptionally meritorious service a junior forester will be eligible to honorary membership in the Maryland Forestry Association, and graduate junior foresters will be given first consideration in the selection of forest wardens.

"As most of the rural boys travel long distances to school, and in many cases are picked up by busses and carried to the larger centers," says Mr. Virgin, "we expect that the junior foresters will become a corps of rangers traveling practically every road of the district. We hope to catch many fires in the start, and have the knowledge present to cope with them. Howver, I am making it clear that the boys are *not* fire fighters. They will be most valuable as preventive agents."

County Forestry in Arkansas

Bradley County, in the south-central part of Arkansas, was one of the first counties in the State to make a systematic attack on its forestry problems, writes Extension Forester W. K. Williams. In 1925 County Agent C. S. Johnson, with the help of W. R. Mattoon of the United States Forest Service, began to develop the interest of bankers, lumbermen, and farmers in local forestry possibilities. In a short time two farmers had offered the use of timberlands bordering on main roads for demonstration thinnings, which are now nearly completed. Later a county forestry committee of five farmers was appointed to work out recommendations as to the proper handling of Bradley County farm woodlands. This committee has now submitted its program with a set of 12 recommendations.

According to these recommendations, the average Bradley County farm should have not less than 50 acres devoted to the growing of timber as a cash crop, and these woodlands should at all times be protected from fire. Overcrowded stands of young trees should be thinned at intervals of five years, the wood cut being sold or used for billets, pulpwood, treated fence posts, or firewood. Mature timber should be marketed each year from a block of 5 acres, or one-tenth of the total woodland, a complete circuit thus being made in 10 years. The farmer should do his own logging if possible; and if he sells his timber standing he should first make a careful estimate and should use a timber-sale contract including the provisions necessary for the perpetuation of timber growth. There should be no cutting of vigorous thrifty pine less than 14 inches on the stump or of hardwood less than 16 inches. Stumps should be cut not higher than the diameter of the trees, and in no case higher than 12 inches. From two to four seed-producing trees per acre should be left standing. In felling trees care should be taken not to injure the young growth, and no dead tops should be left against the trunks of living trees.

The program points out that of the 68,000 acres of farm timberland in Bradley County two-thirds is practically idle, because of woods fires and wasteful cutting, whereas if well set with pines and protected from fire it could be producing an average clear profit of from $2 to $3 an acre yearly.

The five farmers who formulated this program constitute a permanent committee or county board to assist County Agent Johnson in his forestry work. Immediate plans include a dozen forestry demonstrations, of one or two acres each, well distributed over the county.

Plan for Forestry Teaching at New England Summer Camps

Plans for helping city boys and girls to get acquainted with the woods were discussed in a conference held at Boston, Mass., November 27 under the leadership of the Society for Protection of New Hampshire Forests. This society in cooperation with the State university has helped more than 500 farm boys in New Hampshire forestry clubs to learn how to take care of their home woodlands. Now it is reaching out to teach woodcraft and forestry to the thousands of city children who annually spend two months in summer camps. At the November conference the directors of 10 New England summer camps met with representatives of the Boy Scouts, Girl Scouts, Camp Fire Girls, and Y. M. C. A., and with nature-study leaders of several universities. A plan was drawn up for the teaching of woodcraft and forestry in camps, especially in New Hampshire, during the summer of 1927. First teaching the child how to live enjoyably in the open, this plan would lead on to a full appreciation of the relation of the forest to everyday life, and then to elementary forestry.

Some of the subjects suggested for summer camp work are: How to build a camp fire and how to put it out; how to select a camp site and build a shelter; what to take into the woods; what to do on discovering a forest fire; how to follow a compass line and make a simple map; what to do if lost; how to identify tree species; how to mount wood specimens; how to plant, thin, and harvest trees; and what to look for on a visit to a logging operation, a wood-using plant, or a lookout tower.

Course on the Care of Street Trees at Syracuse

A special short course on the care and protection of street, roadside, and shade trees was given by the New York State College of Forestry at Syracuse, N. Y., November 15–20. Members of the college faculty assisted by E. P. Felt, State entomologist, and Hollis J. Howe, city forester of Baltimore, gave lectures on tree pruning, physiology of tree growth, tree diseases, paints and preservatives, tree characteristics, tree repair, planting, moving, insect enemies, sprays and spraying machinery, municipal forestry, and laws relating to street trees. Discussions and field trips rounded out the course, which was arranged by the college in response to a large volume of inquiries on these subjects from municipalities and private individuals. The course was attended by 38 representa-

tives of utility companies of New York State. Several representatives of telephone, telegraph, and lighting companies attended for instruction on the installation and maintenance of overhead wires as they relate to shade trees.

Outlines of the lectures included in the course are available in mimeographed form and can be obtained, so long as the supply lasts, by addressing Paul D. Kelleter, director of forest extension, New York State College of Forestry, Syracuse, N. Y.

Arbor Day in Mississippi

In celebrating December 10 as Arbor Day, schools and communities of Mississippi this year had the help of an attractive illustrated bulletin gotten out by the State commission of forestry under the title "Arbor Day in Mississippi." Opening with Governor Whitfield's proclamation designating December 5 to 11 as "Plant-a-Tree Week," the booklet presents a program for Arbor Day including the text of a number of poems and songs and a series of "forestry facts." Detailed directions are given for the planting of little trees and for their later care, with a charge and pledge to be used in assigning the custody of the newly planted trees. Valuable features are a simple method of giving the actual tree planting a dramatic setting, and a description of the characteristics, use, and soil and moisture requirements of 12 Mississippi tree species suitable for Arbor Day planting.

School Forest for the University of Montana

The forestry school of the University of Montana has acquired 1,500 acres of natural forest land located in Pattee Canyon about 3 miles from the campus, through the cooperation of the War Department and the Department of Agriculture. This forest, which comprises several million feet of western yellow pine, Douglas fir, and western larch, was established in 1878 as a source of timber supply for Fort Missoula. In recent years it has not been used by the War Department, and it has now been turned over to the school of forestry under a special use permit for a term of 50 years.

County Tree-Planting Campaign

The first tree-planting campaign to be put on by any county of North Dakota under the direction of the extension forester is being planned for Mountrail County under the leadership of County Agent Claude Ebling. The cooperators will agree to prepare their land as directed by Extension Forester Charles A. Gillett, and trees will be furnished to them at about $20 per thousand.

Studying Forestry in the North Woods

Twenty-nine seniors of the University of Maine in November left Orono for nine weeks in forestry camp. Their camp is located at Grindstone, in the deep woods of northern Maine. Its use is given to the university by the Great Northern Paper Co., which has a lumbering operation in progress at Grindstone. Gilbert I. Stewart, assistant professor of forestry, was put in charge of instruction at the camp, with the assistance of a man from the State forestry department and an officer of the Great Northern Paper Co.

A series of sawmill meetings in different parts of Ohio, beginning with one at Rome, Ashtabula County, on December 8, has been arranged by Extension Forester F. W. Dean. At these meetings Mr. Dean will demonstrate farm woodland management and methods of sawing, piling, and grading, and will give advice on marketing timber and lumber.

Norway pine seed gives a revenue of from $1,000 to $2,000 a year to the forest experiment station at the University of Minnesota, which has within its boundaries a large tract of timber of this species. The seed is the most expensive kind used in reforestation projects, selling at $22.50 a pound.

Forest Service Notes

The Famous Casement Report

By Will C. Barnes, U. S. Forest Service

Before proceeding to analyze and comment upon the report on national forest range appraisal recently made to the Secretary of Agriculture by Dan D. Casement, it may be well to say something of the man selected by the Secretary for this important bit of work.

Casement was born on an Ohio farm. At the age of 15 he began to learn the elements of cowboy life on an open cattle ranch in western Colorado. After graduation from Princeton he returned to the range country and took full charge of an outfit running more than 3,000 cattle with a permit in a nearby national forest. Some years later the need of a place where his steers could be finished for market resulted in the purchase of a rather extensive farming property near Manhattan, Kans. Here Casement became acquainted with Secretary Jardine, then president of the Kansas Agricultural College. Casement has for many years been prominent at western cattle shows, meetings of

livestock organizations, and farmers' conferences, and has a wide acquaintance among western stockmen. His background of experience, education, and acquaintance, therefore, fitted him admirably for the somewhat difficult and undoubtedly unpopular job which the Secretary wished on him.

Previous to 1905 no charge whatever was made for the use of national forest ranges. When the first forested areas were set aside by presidential proclamation in 1897, each stockman desiring to graze stock on them was required to secure a free permit which specified the maximum number of stock he was to bring on the forest. This was intended to prevent overstocking.

On many of the forests, especially in the Southwest, the grazing of sheep was absolutely prohibited at first, owing of course to the belief on the part of the foresters that while all livestock grazing was to a certain extent detrimental to the forests the grazing of sheep was especially injurious. Later, on the basis of investigations by Gifford Pinchot and Frederick V. Coville, the grazing of sheep was permitted on a majority of the ranges. This policy was put into effect by a circular of November 26, 1900, of the General Land Office of the Department of the Interior, which at that time administered the "forest reserves." On February 1, 1905, the administration of the reserves was transferred by Congress to the Department of Agriculture.

On July 1, 1905, the Secretary of Agriculture for the first time established definite charges, to be effective January 1, 1906, for the grazing use of the national forest ranges. The annual fees for cattle varied from 35 cents in the Southwest to 50 cents in the Northwest. The fee for sheep was established at one-third the rate for cattle.

In announcing this initial charge for grazing Secretary Wilson made the following statement: "These prices will be gradually increased when market conditions, transportation facilities, and demand for the range warrant such action." Thus the assertion so frequently made by western livestock men that the Government originally had no intention of making a charge for the grazing of livestock on the national forests, or that the first charges were intended to cover only the cost of administration, is not well founded.

The grazing fees as established in 1905 were changed very little until 1912. That year the Secretary of Agriculture set them on a slightly higher basis, the average increase in the annual fee for cattle being about 5 cents. In 1915 a new schedule was put into effect, annual fees for cattle ranging from 48 cents a head in the extreme Southwest to 75 cents a head in California and the Northwest. In this year also the ratio between cattle and sheep fees was changed, the sheep fee being figured thereafter at one-fourth the cattle fee instead of one-third. In 1916 the maximum for cattle was raised to $1.25 but the minimum was left at 48 cents.

During 1916 considerable agitation by certain members of Congress for further increases caused the Forest Service to make a fairly wide study of the situation. The result was a statement by Secretary of Agriculture Houston under date of November 3, 1916, that all grazing fees would be increased by 12 cents to 20 cents per head on March 1, 1917, and that further increases would be put into effect in the two following years establishing the fees on a basis of from 80 cents to $1.50 per head per annum in 1919. This plan was later modified so that beginning with the grazing season of 1917 all fees were increased 25 per cent over the amounts charged in 1916. Further increases were postponed during the war; but by order of Secretary Houston the increases provided for by the order of November 3, 1916, were put into effect in 1919. No increases have been made since then.

At the hearings of the House Committee on Agriculture in December, 1919, and February, 1920, on the appropriation bill of 1920, the committee insisted that the grazing fees be raised about 300 per cent. The Forest Service urged a delay because of the five-year permits then in effect, which the Forester considered a quasi contract between the Government and the stockmen. Further, the service explained that the value of the forage could not be definitely stated without a thorough study of the whole question of private land grazing values. The Forester promised the committee this would be made as soon as possible. When the appropriation bill came before the House for a vote an amendment directing the Forester to increase the fees 300 per cent was defeated on a point of order.

The Forest Service then began a careful study and appraisal of the ranges under the immediate direction of Inspector of Grazing C. E. Rachford. This work was brought to a close in 1924, and is a monument to Mr. Rachford's energy, ability, and power of analysis.

Final action on the appraisal report was forestalled by the untimely death of Secretary Wallace, in October, 1924. His successor, Secretary Gore, in the comparatively short period of his administration did not act upon the report, but made the decision that, owing to the unsettled condition of the livestock business at the time, no increases in grazing fees should be made prior to the season of 1926. Secretary Jardine, who took office on March 4, 1925, further postponed the increases until January, 1927.

On the recommendation of the Forest Service, Secretary Jardine early in 1926 requested Dan D. Casement to make a careful review of the Rachford range appraisal report and its basis, making such visits to the various national forest ranges as in his judgment were necessary. This investigation was completed on June 30, 1926.

In his preliminary statement to the Secretary, Casement says:

> In the course of the investigation I have visited all of the western forest districts, and many of the forests therein; have inspected many of the tracts in private ownership forming the basis of comparison by which the grazing value of the forest areas is appraised;

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have checked the report with forest officials in the various districts; have obtained the views of many representative holders of grazing permits on the forests; and have interviewed the lessors and lessees of many range tracts in private hands.

The investigation has been undertaken and prosecuted with an entirely open mind, save for certain beliefs I have long held relative to our national forest policy. * * * I held the belief that the creation of our national forests and the control and administration by Government of their grazing resources had benefited the users of these resources to a degree in striking contrast to such status as they and their industry could have obtained through unrestricted use of unreserved and unappropriated public range. This belief was grounded in the observations of 35 years and in personal experience as a user of public range for a long period and subsequently as a grazing permittee on a national forest. I still maintain it.

Briefly, Casement in his report to Secretary Jardine upholds the contention of the Forest Service that the current grazing fees on the national forests are much lower than they should be in view of the prices paid for the same classes of grazing on private lands either within or immediately adjacent to the national forests. He finds the methods followed by the Forest Service in appraising the national forest ranges to be just and fair and based on sound economic principles. It is Casement's opinion that the Rachford appraisal, in its endeavor to be absolutely fair to the stockmen, "leans backward to the advantage of the permittees." He feels that the use of the forage resources of the national forests at the comparatively low fees now charged by the Forest Service gives the permittees using the national forest ranges a distinct advantage over stockmen who do not have access to these ranges. (He finds that the carrying capacity of the national forest ranges permits their use by only about 1 out of 3 range stockmen in the 11 western range States.) He is "unable to reconcile with the facts the claim made by many permittees that this apparent advantage is more than neutralized by handicaps and hardships attending the use of the national forests."

Casement does not agree that the restrictions imposed by the Forest Service justify a lower scale of fees than that maintained on privately owned land. This because he finds that most of the leases for privately owned land which is used by the stockmen and which is closely intermingled with national forest land contain many of the restrictions imposed by the Government in permitting the use of its land. In his opinion the leases on nearly all of these private lands are really less stable than the forest permits, a majority of the private leases reviewed by him being for but one year while a large number of the grazing permits now in effect on the national forests are for 10-year periods.

Speaking of the Rachford appraisal report as a whole, Casement says:

The report has real worth, not only in that it records the results of an honest and exhaustive effort to fix appropriate values as reflected by rental returns from like private lands, but also in that it contains a large fund of useful data relative to the value of improvements constructed on the forests and bearing on the costs and losses incident to handling stock thereon.

These data are of great importance not only to the service but to forest users and to the public as well.

Furthermore, from a study of the appraisal's practical application it is apparent that its range ratings and allowances are truly reflected in the fees which it recommends and that the results embody proper deductions from the data used.

On analyzing the various plans advanced for determining the value of the national forest grazing lands Casement concluded that the plan adopted by the Forest Service, namely, the appraisal of range values by comparison with the average rental of private lands, was the only reliable, satisfactory, and fair method.

Considering that grazing fees are a minor item in the whole cost of livestock production in the West, Casement does not agree with the contention of many of the stockmen that any increases in grazing fees, no matter how small, would be highly injurious or even ruinous to the livestock industry in general. Nor does he agree that the acceptance of these fees will promote an increase in rates for grazing-land leases in forest States. Instead, he believes it may accomplish an opposite effect.

While concurring in the final figures of the Rachford report, Casement considers it advisable to eliminate certain peak charges in several of the States where, in his judgment, unusual conditions have forced the values of grazing on private lands to points not justified in general. The new fees proposed by the Forest Service represent an average increase of approximately 47 per cent. Casement recommends that when the peaks in several States have been eliminated the proposed increases be scaled down approximately 25 per cent straight through; that the resultant increases become effective in installments beginning with 1927, 25 per cent of the increase being put into effect in that and in each of the three subsequent years.

Casement comments on the working out of the 640-acre grazing homestead law in part as follows:

In practice it has plainly failed to benefit permanently or substantially those who, under its provisions, have filed on 640-acre tracts. I have seen none on which the original claimant still resides. Practically all are abandoned. It has to no useful purpose diminished a public asset long shamefully neglected and abused but still possessing potential grazing values, which could be restored and augmented under intelligent direction and control by Government.

In criticism of the forest homestead act of June 11, 1906, he writes:

Only in very exceptional instances has it benefited the true homeseeker even in the slightest degree, while it has seriously hampered the operations of established permittees on the forests and has heavily handicapped the work of the Forest Service in handling the grazing problem.

On forwarding Casement's report to the Secretary of Agriculture the Forester fully approved its recommendations.

Secretary Jardine, in order to amplify his personal knowledge of the situation, intends to meet representatives of the western range stockmen at the joint

convention of the two national livestock associations, the National Woolgrowers and the American National Livestock Association, in Salt Lake City, Utah, on January 24, 1927. The Secretary will give the stockmen every possible opportunity to discuss both the Casement and the Rachford reports.

National Forest Land Exchanges

By L. F. KNEIPP, U. S. Forest Service

Consummated land exchanges during the fiscal year 1926 added 14,230 acres to the net area of the national forests.

During the 4½ years which have elapsed since the enactment of the general exchange law of March 20, 1922, the Forest Service has pursued a conservative policy in the matter of exchanges. Undoubtedly the disinclination of the service to accept and approve the inflated land values resulting from war and postwar conditions has restricted the acquisition of lands through exchange. A turn in the tide now seems to be under way and, at least so far as the Pacific Coast States are concerned, the acreage offered at prices acceptable to the Forest Service now approximates or exceeds in value the land-and-stumpage resources that may be employed for exchange purposes without departure from sound principles of silvicultural and financial management.

During the months of October, November, and December, 1926, 33 exchange cases were submitted to the Secretary of Agriculture for approval. They contemplate the reconveyance to the United States of 76,717 acres of land and the grant in lieu thereof of 1,549 acres of national forest land, and stumpage to the value of $192,534 to be cut from 12,063 acres of national forest lands.

Several of the cases sent to the Secretary were of outstanding interest and importance. One on the Shasta Forest contemplates the conveyance to the United States of 22,183 acres of land supporting a stand of 61,000,000 feet of timber, the appraised value of the property being $65,065. A case on the Wenatchee National Forest, if consummated, will revest in Government ownership 12,000 acres of land, much of it supporting well-advanced yellow pine second growth, the valuation in this case being $24,326. On the San Juan and Montezuma National Forests, in Colorado, a case has been submitted that would restore to Government ownership 6,900 acres of yellow pine type, half of the area uncut, the rest well restocking, the appraised value being $53,869.

The Kaibab Bug Epidemic is Over

By E. E. CARTER, U. S. Forest Service

"Not enough insects to justify the continuation of experiments and studies." This note in a recent letter of the Bureau of Entomology ends the story of the Kaibab epidemic of Black Hills beetle (*Dendroctonus ponderosa*, Hopk.). The epidemic started about 1920, reached its peak in 1923 and 1924, broke in 1925, and disappeared in 1926. It killed many millions of feet of standing timber, cost the United States more than $75,000 to fight, and gave the best opportunities of recent years for studying the insect under epidemic conditions and for conducting large-scale experiments in control methods.

The western yellow pine timber on the Kaibab Plateau of Arizona is isolated. To the south the Grand Canyon is a 13-mile-wide gash in the earth's crust. On the west, east, and north, the surrounding country is treeless for many miles. The billion feet or more of timber on the plateau is virgin forest, practically inaccessible because so far from railroads. When the epidemic of Black Hills beetle broke out the scientists of the Bureau of Entomology regarded it as a not unmixed evil, for here was the best chance to study the bug since the Black Hills epidemic of 1905–1912. The isolation of the timber body at least reduced the number of possible complicating factors.

Now they tell us that this epidemic of 1920–1925 was merely the latest of many epidemics that have occurred on the Kaibab from time to time. Through past decades and centuries the bugs have killed off the old timber, making room for the reproduction to grow but never, of themselves, wiping out the forest.

Man's part in this latest epidemic? The Forest Service spent over $60,000 killing the bugs by cutting infested trees and peeling or burning the bark. The park service did the same thing on the smaller timbered areas in the Grand Canyon National Park. The Bureau of Entomology told both services what to do, and helped do it. There was not enough money available in any year to do all that should have been done, but literally millions of bugs were killed each year in which control work was done.

Man did not break this epidemic, so far as can be determined now, but he helped. The epidemic developed its own destruction, and the killing by man was like Saul's thousands compared with David's tens of thousands. A dead bug, like a dead Philistine, gives no more trouble. On the Kaibab predacious insects multiplied and grew fat. Also after the first few years the flat-headed borers multiplied even faster than the Dendroctonus beetles and developed the charming habit of eating out the cambium of attacked trees ahead of the Dendroctonus larvæ, so that said larvæ starved. The balance of nature was asserting itself. Man hastened the consummation of nature's efforts. Now the epidemic is past. But a new one may start any time.

Underground Fires

By J. B. HOLM, U. S. Forest Service

During a serious blowup on the Quartz Creek fire, on the Kaniksu National Forest, last summer, the fire jumped the Priest River and in an hour was rolling toward White Tail, threatening to burn the lookout

and destroy the entire Jack Pine Flats beyond. The men on the lookout fled for their lives, leaving their belongings behind. During the night, however, the fire subsided and the lookouts returned to their station. In two days this fire was trenched and under control. A part of the old White Tail Road that had served as a buffer to swerve the fire from its rush toward the lookout was used as a part of the fire line. Along the old road stood a large dead snag which burned so persistently that it was almost two days before it was cut down. The stump was buried repeatedly but continued to smolder like a partially extinct volcano, emitting an occasional wisp of smoke. After several days the stump and adjacent burn were considered dead. Then one afternoon the lookout on White Tail reported a fire near the old road, spreading rapidly. All available men were rushed to the spot and by midnight the fire had once more been put safely inside a trench.

The following morning I decided to make a thorough examination as to the origin of the fire. We took the old road between the old and the new burn and were just passing the old stump when our car broke through the tread of the roadway. Upon examination we found that a root from the old outlaw stump had burned beneath the road and had broken out just 16½ feet from the old snag's base. The course of the root was easily traceable. Had the old roadway held up, perhaps the snag's secret would never have been disclosed and the cause of another fire would have remained a mystery. Had weather conditions been unfavorable, also, the work of the preceding three weeks might have been lost through the treachery of that root fire.

Another such incident occurred on the same fire, with less serious results. In this case the root led the fire beneath the trench for more than 6 feet before it broke out.

Some Effects of the Florida Hurricane

By R. M. Evans, U. S. Forest Service

About the middle of October I had occasion to visit Pensacola and the Choctawhatchee Division of the Florida National Forest. In Pensacola and vicinity evidences of the big September hurricane still remained—boats that had been beached, a wrecked drawbridge, unroofed houses, much of the four-mile causeway of the new Escambia bridge washed out, windows in the Federal Building covered with boards, etc. But the most interesting manifestation was the effect of the wind and the wind-driven salt spray upon trees in the city and along the bay and Santa Rosa Sound.

As might be expected, broad-leaved trees in exposed locations had been stripped of their leaves by the very force of the wind, and fruit and nut crops had suffered. Peach trees here and there were in bloom. Pecans were putting out new leaves, and groves of these trees were clothed in tender green as in spring. But evergreens, particularly the pines, had quite the opposite appearance. Wherever these trees had been exposed to the vast quantities of salt spray driven in from the Gulf they were as brown as though scorched by a hot fire. This effect was noticeable to a considerable distance back from the water, but probably nothing more serious will result than a new crop of leaves next spring.

Of course, considerable timber was blown down, but damage of this nature on the national forest was less than was anticipated. Timber worked for turpentine suffered less on the national forest than on private land, the reasons being shallower and more careful chipping and shallow incisions in inserting aprons. It was one more vindication of Government methods. Enough timber did blow down on the national forest, however, to show that worms entering at the edge of the face and through faces that have been burned or have stood until the pitch oxidizes are doing an unforeseen amount of damage. This factor will have to be given more consideration in the future.

A Field Station for the California Forest Experiment Station

A field station is to be established by the California Forest Experiment Station on land belonging to the city of San Bernardino. The tract is located in the Devil's Canyon watershed and consists of about 40 acres of bench land at an elevation of approximately 2,600 feet. This land was farmed for some time before being acquired by the city, and it includes about 15 acres of orchard and vineyard. The soil is of very good quality and ample water is available from several springs. An excellent nursery site has been selected in a protected cove. This nursery will be under the direction of the California Forest Experiment Station but will be financed largely by the five or six southern counties of California and local forestry associations, which will receive from it stock for watershed planting. The slopes surrounding the clearing are typical of the southern California brush fields. As all the adjacent lands belong to the city of San Bernardino or to the Forest Service there will be plenty of room for experimental plots of all kinds.

Longleaf and Slash Pine Seedling Survival

Preliminary analysis of the data on seedling survival which Professor Hayes of the University of Louisiana recently gathered for the Southern Forest Experiment Station has brought out the following comparisons: Two-year-old plantations of slash pine showed a survival of 69 per cent on slopes compared with 76 per cent on the flats where it naturally grows. One-year-old slash pine plantings showed an average growth during the 1926 season of 18 inches on ridges compared with 23 inches on flats. One-year-old slash plantations had a survival of 78 per cent on flats, 70 per cent on slopes, and 61 per cent on ridges. Rabbit damage was serious on the ridges and slopes but slight on the flats.

Long-leaf and slash 1-year-old seedlings growing on a natural long-leaf ridge-top site gave survival percentages of 73 for slash and 86 for long leaf, with some rabbit damage to the slash seedlings. On a similar area long leaf showed a survival of 88 per cent, as against 62 per cent for slash. These preliminary figures indicate that there may be considerable danger in attempting to plant tree species out of their natural habitat.

Growth of Planted Western Yellow Pine

Some western yellow pine planted in the spring of 1917 in a cleared sagebrush area in Ephraim Canyon, on the Manti National Forest, were measured this fall. Out of 19 trees, 6 had attained a height of at least 4 feet and 2 had reached a height of nearly 5 feet. The average height growth of all the trees was 6.7 inches in 1925 and 8.7 inches in 1926. In 1926, 12 trees made a height growth of 8 inches or more, with a maximum of 16 inches. In 1925, only 7 trees grew 8 inches or more, with a maximum of 10.5 inches. The splendid growth in 1926 is all the more remarkable because of the drought conditions existing during the past growing season.

The range of the blue spruce (*Picea pungens*) as recorded by the Forest Service has recently been extended southward through information contributed by F. L. W. Grubb, supervisor of the Prescott National Forest. Mr. Grubb determined that this species, previously not shown by Washington records as ranging south of the Santa Fe National Forest, exists on both the Datil and Gila National Forests.

A survey of beetle losses in 1926 in the western yellow pine timber in Klamath and Lake Counties, Oreg., outside of the boundaries of the present southern Oregon pine beetle control project was begun on October 21 by the Klamath Forest Protective Association and the Forest Service. This survey is the fifth of its kind to be made on this area in successive years. It will cover 2,186,000 acres of Government land and 962,000 acres of land in private ownership, and 17,390,000 board feet of timber.

General Forest News

Pines—A Cash Crop for Southern Arkansas Farms

By W. R. Mattoon, U. S. Forest Service

A bountiful cotton crop in 1925 and a 4,000,000-bale overproduction in 1926 have flooded the market so that even the big planters of the rich Mississippi bottom lands are unable to sell their cotton for anything like what it cost them to grow it. In this emergency many of the farmers of the South are cutting timber and hunting fur-bearing animals to tide themselves and their families over until next fall. It has been well said that timber is the farmer's bank account.

Much of the land now in cultivation in the pine section of Arkansas will grow cotton only sparingly unless heavily fertilized. Fertilizer costs money. Cotton is still for thousands of farmers the only agricultural crop.

How does loblolly pine compare with cotton as a profitable crop on the less fertile cut-over pine land of southern Arkansas? Agronomists of the United States Department of Agriculture have figured out that in Bradley County, Ark., where cotton growing requires substantial applications of fertilizer, cotton sold at the average market price of the past five years brings in a profit of about $1.30 an acre. The landowner in southern Arkansas who grows loblolly pine on a 40-year rotation as a crop—keeping out fire, thinning his stand two or three times for pulpwood or excelsior wood, and marketing both pulpwood and sawlogs at a shipping point or mill—can at present prices make a net profit of $2.30 an acre over and above a 6 per cent profit on his investment in land. Here is the way this business of growing timber works out:

Profit from 1 acre of pine timber grown as a crop

Money returns from timber crop:	
20,000 board feet of saw logs in 40 years, at $10 per thousand delivered at the railroad or mill	$200.00
25 cords of pulpwood cut in thinnings and in the final cutting, at $5 per cord	125.00
	325.00
Cost of growing and marketing the crop:	
Rental of land worth $10 per acre for 40 years, at 6 per cent compound interest	92.85
Taxes, at 10 cents per acre per year, and fire protection and care at 5 cents per acre per year for 40 years, at 6 per cent compound interest	23.21
Cost of logging and hauling saw logs and pulpwood to railroad or mill	117.00
	233.06
Profit on timber crop:	
Clear profit per acre over 40-year period of growing the crop	91.94
Yearly average net profit per acre, over good wages for man and team and a 6 per cent compound interest return on the investment	2.30

This average net yearly profit from the poorer type of land, of $2.30 per acre above a good rate of interest on the money invested, is believed to be a conservative estimate for either short-leaf or loblolly pine. It will

of course vary considerably with different conditions. Bankers and farmers in several parts of southern Arkansas have expressed the opinion that a net income of $2 to $3 an acre is a very satisfactory return on land of this type. Prices for second-growth pine timber, which have been mounting rapidly during the past few years, are likely to continue to rise, so that a greater profit than that shown may reasonably be expected.

Forest Conservation Ideas of 40 Years Ago

By R. K. Helphenstine, jr., U. S. Forest Service

In 1886 the Department of Agriculture issued Miscellaneous Special Report No. 10, "Descriptive Catalogue of Manufactures from Native Wood." This report was devoted primarily to a description of the department's forestry exhibit at the World's Industrial and Cotton Centennial Exposition held in 1884–85 at New Orleans, La. It presented information based upon data obtained from manufacturers in various parts of the country through the medium of a questionnaire, referred to in the letter of transmittal to the Commissioner of Agriculture as a "special interrogatory." One of the questions in the "interrogatory" drew forth from at least 100 manufacturers statements of their views on the general aspects of the forestry question, future timber requirements, and forestry legislation. The opinions of some of these manufacturers of two score years ago were expressed as follows:

Burlington, Vt.: Will be exhausted in 25 years at present rate of consumption. Native woods should be planted, and forests protected.

Mobile, Ala.: As far as the Gulf States are concerned, the pine would last the sawmills for perhaps 100 years to come; but the timber will, I think, be practically gone in 30 years on account of the destruction wrought in the manufacture of turpentine and rosin. The work should be regulated by law.

Marshfield, Vt.: I am directly on the line of railroad, and cut nothing but the largest timber, leaving all of the small to grow up, which will be fit to cut in 20 or 25 years. It will surely pay to grow timber on or near lines of railroads better than any other crop.

New York City: Unless some more effective mode is soon adopted to protect the forests and incentive offered to plant, we shall in a short time have to depend upon other countries for our supplies.

Canton, N. Y.: The State should own the lands on the headwaters of our rivers and should control the cutting of timber.

Chicago, Ill.: There is cedar enough to last for 100 years, but it will be very expensive in 25 years from now. All railroads building west of Mississippi River, north of Missouri, and west of Missouri, south of Iowa, should have been forced to set aside two sections of land for each 10 miles of railroad built, for tree culture.

Philadelphia, Pa.: There is no question but that the timber is being cut faster than it grows. The amount consumed by the railroads for ties, in addition to the increased demand from abroad and the regular home consumption (constantly increasing with the increase of population), must force upon the country the necessity of legislation similar to that existing in Sweden, Norway, and Germany.

Bristol, Conn.: If I were a young man I would put one-third of my 30 acres in black walnut and wait for it to grow; would reap a rich reward in days' decline.

Dayton, Ohio.: At the present rate of unnecessary slaughter of timber, the country will be denuded in 25 years (hard maple). The larger forests are purchased and cleared for the profit there is in the timber. The farmer who has 100 acres of land, with 15 to 20 of it forest, says "the taxes are so great, and the yield so slight from his timber land, he is obliged to reduce the area," and so the forest must go. Removal of tax from all timber land would, in a large degree, remove the necessity for cutting out the same on the cleared farms, as well as in the extensive forests.

Dague, Ohio: The timber we employ in our business (cottonwood, elm, and sycamore) will be used up in five years, or nearly so, in the State of Ohio. There should be legislation to prevent the wanton destruction of first-growth timber by the sawmill men. There are at least 40 sawmills in Paulding County.

Chicago, Ill.: Everybody seems to know that our forests and our resources in this line are nearly ruined already, but every one wishes only to enrich himself without regard to the future. We should have earnest legislation.

Grand Rapids, Mich.: The wholesale destruction of lumber should be counteracted, especially of hardwood kinds, as it will take a long time to repair deficiencies by the growing of trees.

Ewing, Mass.: There should be practical legislation to replace the wholesale slaughter of timber throughout the country.

An Oklahoma Operator Grows Timber

By George R. Phillips, State Forester of Oklahoma

The Choctaw Lumber Co., Idabel, Okla., which owns approximately 500,000 acres of virgin and cut-over short-leaf pine land in southeastern Oklahoma, has begun to practice forestry with the idea of operating its land on a sustained-yield basis. It employs a consulting forester, who has laid out the plan for this work and is now supervising its operation.

More than a year ago this company instructed its woods crews to leave all trees 14 inches and less in diameter on the stump unless there were a considerable number of these small trees grouped close together, in which case the stand was to be thinned moderately. If no trees 14 inches or less in diameter occurred for a considerable distance, but larger ones occupied the area, a sufficient number of the larger trees were to be left to insure a successful seeding of the area. Under this practice the cut-over area has stocked with a stand of fine young second growth and a second cut—oftentimes of greater volume than the first—is assured in from 15 to 30 years.

For a time brush crews following the loggers lopped tops and pulled them away from the young standing timber in order to lessen damage in case of fire. This practice has been abandoned, owing to excessive cost, and all efforts put on fire-prevention work.

Before the diameter-limit cutting plan was introduced practically everything was cut, leaving a tangle of low-grade hardwoods with but few small pines to act as seed trees. As a result considerable areas of the

company's holdings will be a long time coming back to a good stand of pine, even with adequate fire protection. Areas of this sort from which fire has been kept out for a year or two are now coming up with little pines, however, indicating that artificial means of reforestation will not have to be resorted to if fire is kept out.

The company is expending considerable money and effort on fire protection and is cooperating with the State forestry commission in this work. Two steel lookout towers and approximately 150 miles of telephone line have been put up. A forester is employed to devote his entire time to this work.

Revived Interest in International Forestry Bibliography

By C. F. KORSTIAN, U. S. Forest Service

One of the outstanding developments in international forestry affairs during 1926 was the revival of interest in an international forestry bibliography. This interest developed simultaneously in Europe, in India, and in America.

The foundation for an international forestry bibliography was laid at the fourth meeting of the International Union of Forest Experiment Stations, held at Vienna in 1903. A bibliographic commission was formed at that time, consisting of Doctor Bühler, of Tubingen (chairman); Doctor Opperman, of Denmark; Forest Inspector Crahay, of Brussels; Adjunct Böhmerle, of Mariabrunn; and Dr. Philip Flury, of Zurich. At the fifth meeting of the union, at Stuttgart in 1906, and the sixth meeting, at Brussels in 1910, the question of a bibliography was further considered. The commission was then increased to seven members through the appointment of Doctor Hesselman, of Stockholm, and Doctor Beck, of Tharandt. A final decision regarding the bibliography was to have been made at a seventh meeting in September, 1914, in Hungary, but this meeting was postponed because of the outbreak of the World War.

In 1925 Doctor Flury prepared a tentative scheme for the classification of forestry literature, based largely upon the one used at the Swiss Forest Research Institute, which he proposed as the starting point in developing an international forestry bibliography. At an international conference held in Zurich April 23 and 24, 1926, an attempt was made to adopt a classification of forestry to serve as the basis of the international bibliography. Prof. Walter Mulford of the University of California, the representative of the United States at this conference, reported that the discussion, which centered on two schemes proposed by Doctor Flury and Doctor Oppermann, led to no decision.

At the International Forestry Congress at Rome in May, 1926, still another system for filing information on forestry was proposed by Mr. S. H. Howard, of British India.

The forestry classification scheme prepared by a committee of the Society of American Foresters [1] is being incorporated in the Extension Handbook of the Extension Service of the United States Department of Agriculture, which is expected to appear during January, 1927. This scheme has been used by the editor of the Dewey Decimal Classification in preparing the twelfth edition of that classification.

The forestry section of the International Congress of Plant Sciences held at Ithaca, N. Y., August 16 to 23, 1926, devoted one session to a symposium on the question of an international forestry bibliography, and the resolutions adopted by this congress included the following:

Resolved, That it is the sense of the forestry section of the International Congress of Plant Sciences that it is in favor of seeing an international forest bibliographic commission organized, and that those nations having forestry organizations be invited to establish a national forestry commission, the chairman of which shall be a member of the international forest bibliographic commission; that the international forest bibliographic commission have an executive committee of five members, the duty of which shall be to decide what organization shall issue a bibliography and to devise means for carrying on the work.

It seems probable that the International Union of Forest Experiment Stations, which, according to present plans, is to be revived, will inherit the major responsibility for an international forestry bibliography.

The Railroad Fusee—A Possible Fire-fighting Tool

From article by H. B. ROWLAND, District Forester, Warren, Pa.

This season I experimented in the use of railroad fusees for back-firing, trying them on as many fires as possible. Altogether I believe they were highly successful, and I think they are even more economical than the big torches.

In the first place, the big torch is heavy and clumsy and unwieldy in the brush. Usually the man who carries it is good for little or no other work than carrying it along. If he is used for something else, he usually hangs his torch in a tree and when the crew move on and the torch is again needed they use makeshift methods of firing rather than have him take the trouble to go back over the line to get it. In addition, back-firing is usually only short-time work, so that most of the time the torch man is loafing along with his torch or has entirely dropped it and is doing other work.

The flame of the torch is not sufficiently hot in most cases to make easy and fast firing. Nor does it force its way down into the leaves; in burning usually the flame is toward the top, and it is necessary to poke the torch down into the leaves for firing. We made a test of some torches and found that when freshly filled with oil they burn for from 40 minutes to an

[1] Journal of Forestry 21, 148–161, 1923.

hour. For longer firing than this one must necessarily carry a can of oil, which is another item of encumbrance on the fire line. In most cases the torches leak very badly when filled with oil and if they are carried in the truck or around the woods for any length of time a large part of the oil wastes away, which means that oil must always be carried in the car for filling before going into the woods or else must be carried into the woods.

Now for the fusees as we tried them. There are the 5-minute and 10-minute fusees, which actually burn 6 or 7 minutes and 12 or 14 minutes respectively. They weigh only 4 and 8 ounces apiece and are self-lighting. They can not be extinguished by wind or rain. They burn with a very hot, hissing flame which squirts out from the front end several inches. It is especially easy to fire the leaves with them, both because the hissing flame goes into the leaves and because it generates great heat. As I said before, back-firing is usually short-time or intermittent work, so the short-time fusees could easily be used on short sections of line. One man can easily carry in his pocket enough of the larger size fusees to last more than an hour, and several members of the crew can carry a pocketful apiece without inconvenience to anyone, every crew member remaining available for constructive work.

These fusees cost in gross lots 6¼ cents apiece for the small size and 8⅓ cents apiece for the large ones, which while seeming expensive is, I believe, quite economical as compared with carrying torches and oil and delegating one man to handle this material on the fire line. They are the regular railroad fusees. It may be, if we find it practical to order them in large quantities, that the manufacturer could modify them slightly in order to make them cheaper. With us the heat and burning are the only consideration, while with the railroad the color, lighting, and other points have to be considered.

Treated Ties Give Good Service in Trolley Tracks

At the annual meeting of the American Electric Railway Engineering Association in Cleveland, October 4 to 8, one of the association's committees reported on a special study of the use of treated wood. By circulating a questionnaire this committee has brought together information indicating that general adoption of the use of treated wood would save a great deal of money for the electric railways, as it already has for the steam roads.

About 60 per cent of 140 electric railway companies addressed by the committee answered its questionnaire. Most of these stated that they were making some use of treated timber. Many companies had begun the practice too recently to make any conclusive statements as to its results, but a few reported on the basis of long experience.

The Georgia Railway & Power Co., of Atlanta, Ga., has creosoted pine ties in good condition after 31 years of service, first in open track and later in paved track. The city of Denver, which uses creosoted ties extensively, reports their average life as 19 years. St. Louis has used pressure-creosoted ties in all re newals in open track since 1912. Minneapolis has installed about 200,000 creosoted ties since 1907, with good results. Treated ties installed there in 1917 when removed recently on account of reconstruction were found in such good condition that they were used over again, while untreated oak ties of the same length of service had to be scrapped.

"Such instances disprove the old theory prevalent among electric railway engineers and officials, that ties need last no longer than the paving in which they are laid or the life of the rail in heavy traffic," remarks the Wood Preserving News. "A properly treated tie should last as long as almost any paving and rail and still be available for reuse."

The cost per tie per year on electric railways, including pavement replacement, was revealed by the study as follows:

	Untreated ties	Treated ties	Saving effected
Bituminous macadam paving	$0.59	$0.57	$0.02
Asphalt paving	1.08	.90	.18
Granite block paving	1.64	1.38	.26
Open track	.37	.28	.09

Forest Protection Conference at Syracuse

Forest protection problems having to do with fire, insects, fungi, grazing, wild life, and sanitation were discussed at the Forest Protection Conference held November 10 to 12 at the New York State College of Forestry, Syracuse.

William G. Howard, assistant superintendent of State forests of New York in charge of fire protection, in the opening address of the conference said:

The average acreage burned over each year in the Adirondack and Catskill regions has been reduced to less than 10 per cent of what it was just prior to 1909, so that at present there is only about one chance in a thousand of a given area of land being burned over in any one year, a degree of hazard which it is claimed is an insurable risk and as such justifies investment in forest plantations and growing forests in New York State.

Mr. Howard mentioned as part of New York's fire protection equipment a system of 64 standard fire observation stations, with steel towers and telephone lines.

Paul W. Stickel, of the Northeastern Forest Experiment Station, in discussing the relation of meteorological studies to forest fire prevention stated that "f central Massachusetts, 58 per cent of all the days during the spring fire season had a relative humidity of 50 per cent or less. This 58 per cent of all the days accounted for 81 per cent of the number of fires, 99 per cent of the area that was burned, and 98 per cent of the damage caused."

Prof. S. N. Spring of Cornell, in a paper on grazing, said:

Two million acres out of 3,800,000, the total area of woodland in farms in New York State, are being pastured, and are therefore on the down grade toward final extinction. Furthermore, the percentage of area pastured is on the increase * * *. Grazing slowly but surely changes conditions, more rapidly if many animals occupy the wood lot. The soil is trampled and packed, roots of shallow-rooted trees become exposed and as mature and overmature trees come down or are cut out with none to replace them, the litter disappears and grass replaces it. These grasses growing in the partial shade lack great nutritive value and steal food and moisture from the trees. * * * In the maple-sugar industry it has been found that the sap run is best from ungrazed maple wood lots.

In discussing game management Prof. A. V. S. Pulling, of the Roosevelt Wild Life Forest Experiment Station, brought out the fact that deer usually congregate in slashes or burns to eat young sprout growth and that a burn or slash growing up to maple and poplar sprouts alongside a cedar swamp or spruce thicket area is ideal winter quarters for the animals. "Deer have tough picking in old-growth upland forests," said Professor Pulling. "A plantation surrounded by old growth might be badly injured if the animals wintered in the vicinity. Deer, of course, live on aquatic vegetation in the summer, so far as they can get it, so real reproduction damage is confined to a few winter months."

Harvey J. MacAloney, Northeastern Forest Experiment Station, in discussing the white pine weevil expressed the opinion that "the most advantageous and cheapest way to grow white pine to protect it from the weevil and to control the injury is to grow it in mixture, preferably in groups with species that will be of value in the final crop. Hemlock and the better hardwoods, such as oak, ash, and hard maple, are advised."

Papers were presented on the gipsy moth and the white pine blister rust. In discussing the latter Dr. H. H. York, forest pathologist for New York State, said:

In advocating the substitution of species of forest trees for planting in place of white pine, we lose sight of the important principle that forest tree species while free from any known pests to-day may not be so 15 to 20 years from now. * * * Already we have millions of trees of a foreign pine growing in New York, recommended for planting very strongly because it has no pests. But no one knows just how this species will react toward our native forest tree fungi and insects.

Other subjects treated at the meeting were "Federal forest fire prevention in the Northeast," "What are the basic essentials of fire control," "Problems arising from the recreational use of forest areas," "Protection of forest plantations in New York State," "Present status of insect infestation in forest areas of the Northeast," "The rôle of fungi in the disposal of brush," and "Decay in relation to length of rotation."

Regional Accessibility and Stumpage

The important bearing of regional accessibility on stumpage prices is brought out by a tabulation of second-growth pine stumpage prices in States of the South Atlantic and Lower Mississippi regions. How much higher prices are near large consuming centers is shown by the following table, prepared in connection with the forest taxation study of the United States Forest Service:

Stumpage prices of second-growth Southern yellow pine, by States

State	Price per M	State	Price per M
Delaware	$9.70	Alabama	$2.52
Maryland	8.97	Mississippi	2.22
Virginia	5.60	Arkansas	4.04
North Carolina	5.27	Louisiana	4.57
South Carolina	4.02	Oklahoma	1.93
Georgia	3.41	Texas	3.77
Florida	1.88		

Dendroctonus Monticolae in Two Western Forests

Control operations instituted in the past season against an epidemic of *Dendroctonus monticolae* on the Bitterroot and Beaverhead National Forests resulted in a fairly efficient clean-up on the Beaverhead Forest, the Bureau of Entomology states. The $17,000 allowed for the purpose did not, however, permit the treatment of more than the extremely advanced groups of infested trees on the Bitterroot Forest. The outbreak on the Bitterroot Forest, which began four or five years ago, has since been destroying hundreds of thousands of lodge pole pine and western yellow pine trees every year; on the Beaverhead, where the insects established themselves within the past two or three years, the infestation has threatened to become equally serious.

At Sula, Mont., intensive studies of *Dendroctonus monticolae* begun by the Bureau of Entomology in 1925 were continued through the 1926 season.

Naval Stores Meetings and Field Days

A field day for naval stores operators was held at Camp Pinchot on the Florida National Forest on November 4, under the auspices of the Pine Institute of America and other agencies. Seventy turpentine operators (representing about 1,500 crops) and land owners went through the woods and examined the turpentining methods practiced by the United States Forest Service. They saw trees with turpentined faces 37 inches high which after 4 years' work had

yielded as much gum as trees worked by common commercial practice with faces 90 inches high. The use of fire towers and other means of forest protection was also shown.

A second conference held by the Pine Institute of America at Biloxi, Miss., on November 6, was attended by about 75 per cent of the Mississippi turpentine operators. This was followed during the month with well attended meetings at Bainbridge, Valdosta, and Brunswick, Ga., and a field day at Starke, Fla.

Southern Pine Association Optimistic about Timber Growing

Timber growing is mentioned in a statement issued recently by H. C. Berckes, secretary-manager of the Southern Pine Association, as one of those things that need no argument.

"During the year just passed," said Mr. Berckes, "reforestation won over a number of new friends in the southern pine field. It is quite evident that there is no danger of this species of wood becoming extinct, commercially or otherwise, during the next half century, if ever. The new growth during 1926 approached closer to the cut than ever before since the industry was established. From all indications the practice of reforestation within a few more years will have become so widespread in the South that the annual growth of southern pine will more than replace the annual consumption of the mills."

The cost of producing, distributing, and selling southern pine during 1926, according to this statement, was distributed on the average as follows: 37 per cent for labor, 19 per cent for supplies used in manufacturing and for repairs and similar expenses, 15 per cent for general overhead including selling expenses, 9 per cent for depreciation, and 23 per cent for stumpage.

Planted Pines in Hawaii

Trees native to the Temperate Zone have made remarkable growth at high elevations in Hawaii, according to a report by C. S. Judd, superintendent of forestry of the Territory. Coulter pines set out by Mr. Judd's predecessor 15 years ago at an elevation of 6,750 feet, east of Puu Nianiau on the private land of Kalialinui, have attained a height of 25 feet and a diameter at breast height of 12 inches. These pines are bushy and spreading and have deposited a mat of needles at least 6 inches deep, affording excellent watershed protection. In the same plantation western red cedars of the same age are now 21 feet high with an 8-inch diameter at breast height, and white pine trees are 17 feet high with a 6-inch diameter.

Privately Owned Arkansas Land Under Forest Management

Hall, Kellogg & Co., consulting foresters, have been given charge of nearly 29,000 acres of land in southern Arkansas on which the Moline Timber Co. recently concluded lumber operations. The land lies in Ouachita, Dallas, and Clarke Counties and is mostly well consolidated in the lowlands of the Ouachita River. It carries a good growth of young trees, largely of the better hardwoods but including a considerable proportion of pine. Hall, Kellogg & Co. assume full responsibility for the management of the property and will develop it for timber production. They have organized a fire-protection plan and will undertake some experimental work in order to exterminate the large worthless hardwoods. At present they are carrying on tie operations to remove some of the hardwoods not suitable for saw logs.

Laboratory of Western Pine Association

A lumber-testing laboratory has been put into operation by the Western Pine Manufacturers' Association in Portland, Oreg., under the direction of Albert Hermann. Mr. Hermann is a former member of the staff of the U. S. Forest Products Laboratory who in 1923 became manager of the association's lumber-seasoning department. The laboratory is equipped for the measurement of shrinkage of commercial sizes of lumber and for measurement of heat transmission of building material and wall sections, doors, and windows, under conditions very closely approximating those of service. Essential standards of measurement are checked against Bureau of Standards equipment. The projects authorized at present include a study of the relation of density of wood to thermal conductivity.

Increase in Preservative Treatment of Ties

Only 21 per cent of the railway ties purchased in 1911 were given preservative treatment, says the American Wood Preservers' Association. In 1923 the proportion had risen to 39.5 per cent, and in 1925 it was 56.2 per cent. As late as 1923 the extension of the life of ties through treatment had not effected any decrease in the number purchased; but the number of ties purchased in 1925 was less by 18 per cent than the number purchased in 1923.

Blister rust control work in Vermont in 1926 covered 22,650 acres of land. More than 257,000 wild currant and gooseberry bushes were destroyed.

Foreign Notes

Forestry in Japan

(From information given by Doctor Shirasawa, director of the Japanese Forest Experiment Station, to the assistant commercial attaché at Tokyo)

Forests occupy about 48 per cent of the area of Japan proper, and about 65 per cent of the combined area of Japan, Korea, Karafuto, and Taiwan. Of the 44,486,583 cho (the cho equals 2.45 acres) of forest land in the Empire, not much more than one-third is private property.

The Imperial Government maintains one forest experiment station, and research is carried on also by divisional forest offices which are in charge of State forests. These experiments deal usually with soil influences on the growth of forest trees; the chemical and physical nature of wood; methods of thinning; forest protection; meteorological observations; culture of trees for farm use; forest grazing problems; and seed testing. Special experiments now under way in branch offices have to do with the growth of tropical forest plants in the Bohnin Islands and with methods of planting field crops in forests.

Japan has four forest schools of university grade, as well as a number of other institutions devoted to forestry education. The oldest of these is the Tokyo Forest School, established in 1881. The four principal schools, those in the Imperial Universities of Tokyo, Kyoto, Kyushu, and Hokkaido, in 1924 graduated 672 students.

Japan is especially dependent upon water supplies for the irrigation of rice fields. The rice crops are endangered not only by drought but by floods and landslides. The Government has therefore made the protection of water supplies the principal object of forest research, and requires and subsidizes flood-control work on private forests. Since 1923, when landslides caused by the earthquake created vast damage, the Government has appropriated yen 1,000,000 annually for flood-control work. (The yen in 1924–25 was worth between 37 and 41 cents.)

Subsidies for the restoration of waste lands have been granted since 1911. At the end of 1924, 16,847 hectares of waste land had been afforested at an expense to the Government of yen 3,074,000.

Since 1919 the Government has subsidized the rearing of seedlings, either by prefectural governments or by private individuals. Another subsidy is granted for the encouragement of the afforestation of bamboo stands, and still another is allowed to forestry associations for the support of study, lectures, competitive exhibitions of forest products, and investigations and experiments.

Canadian Pulp and Paper

The paper manufactured and the pulp wood and pulp exported by Canada in 1925 were worth $202,783,017, according to a preliminary report by the Dominion bureau of statistics. This is 8.3 per cent more than the value of the 1924 production and is within 10 per cent of the record value of 1920.

Newsprint paper constituted 81 per cent of the total reported paper production of Canada in 1925, amounting to 1,536,523 tons, an increase of 11 per cent over 1924. In quantity of newsprint exclusive of hangings or poster paper produced during the year Canada practically matched the United States, the figures reported being 1,529,251 tons and 1,530,318 tons, respectively. Exports of newsprint from Canada amounted to 1,401,651 tons—an increase of 15 per cent over 1924. Of this total, 1,320,600 tons were for United States consumption.

Exports of wood pulp from the Dominion according to these preliminary figures rose 23 per cent in quantity and 19 per cent in value in 1925 as compared with 1924, the 1925 figures being 961,367 tons and $47,931,905. Canadian exports of pulp wood, entirely to the United States, amounted in 1925 to 1,423,502 cords, valued at $14,168,935.

Canadian paper and paper stocks imported into the United States during 1925 were valued at $138,700,000, which is 62 per cent of the total value of American imports of these materials during the year.

Timber in the Zapata Swamp, Cuba

The Zapata Swamp, in southern Cuba, has all the essential features of the Everglades and is even more interesting, according to H. H. Bennett of the United States Bureau of Soils, who recently made a reconnaissance soil survey of Cuba for the Department of Agriculture in cooperation with the Cuban Sugar Club. This great Cuban swamp of nearly 1,800 square miles includes an area of limestone that is filled with holes and covered with a variety of tropical trees. Silk-cotton trees 4 feet in diameter, mahogany, and many other kinds are found growing on this limestone area where not so much as a spoonful of soil could be gathered from an acre. These trees make their start in pockets and holes in the limestone where collections of leaves and slight accumulations of disintegrated rock furnished them with material for growth. The roots stray about over the surface of the rock in search of food, finally plunging through holes to find sustenance in soil hidden deeply in the cavernous recesses of the coral stone.

Throughout the rocky areas, one of which is more than 50 miles in length, there are patches of remarkably fertile red soil. Crossties of a fine quality of mahogany are brought out from these stony lands.

The Zapata Swamp is a paradise for the natives who are engaged in burning charcoal. These men often live for months in complete isolation, coming out only to market their product. Canals have been dug into the marginal areas for bringing the product of the kilns out to sea, where it is put on small schooners and carried to market. The entire island is a market place for charcoal, the national fuel for cooking. Here and there on the dry stony lands are the homes of families who make their living cutting crossties and manufacturing charcoal.

Low Fire Score for New Brunswick

With only 65 forest fires reported in 1926, New Brunswick established a new low record. The previous low annual total recorded by the provincial department of lands and mines was 103, for the year 1925, and the annual average for the six-year period 1920–1925 was 254. The fires of 1926 burned over 12,423 acres, which is less than one-third of the average for the preceding five years. The fact that fewer fires were caused during 1926 by people traveling in the forests may be partly attributable to the late wet spring and to the hordes of black flies and mosquitoes which later kept many fishermen out of the forests. At the same time greater precautions were taken by the provincial forest officers in checking up on travelers in the forests, and during two of the most hazardous periods the forests were closed to public travel.

Commercial Forest Nurseries in Germany

Germany has 160 commercial forest nurseries, with a total area of 3,500 acres. Of these 23, with an area of 2,650 acres, are located at Halstenbek in Schleswig-Holstein. The total output in 1925 was 1,070,000,000 conifers and 180,000,000 hardwoods. The nurseries at Halstenbek produced 65 per cent of all the conifers and 92 per cent of all the hardwoods. Germany's annual requirements for planting stock are estimated at approximately 1,532,000,000 conifers and 190,000,000 hardwoods—enough to plant about 500,000 acres. Approximately 30 per cent of the conifers and 5 per cent of the hardwoods are raised on the forests, the commercial nurseries furnishing the remainder.

Fire Protection in France

Wooded areas in France protected from fire during 1926 by syndicates of private owners with the cooperation of the Government totaled 75,000 hectares. The 12 syndicates thus taking advantage of a law of 1924 which provides for Government subvention of fire-preventive work by private owners, are located in the departments of Var, Gironde, and Dordogne.

Forest fires covering 2 hectares or more that were reported to the Ministry of Agriculture in 1926 prior to the fall rains numbered only 130. Forests in the center and north of France were almost entirely spared, the principal fires occurring around Bordeaux and Marseille.

Latvia Owns Most of Its Forests

From article in the Timber Trades Journal (London), October 30, 1926

The forests of Latvia cover about one-fourth of the country's area, or 25,000 square miles. Only 15 per cent of them are privately owned, and the State owns more than 83 per cent. Coniferous species, of which the chief is Latvian redwood pine, make up 78 per cent of the timber on the State forests. The timber exports of Latvia come mainly from the State forests. Since 1922–23, however, the State has not itself exploited forests for the export trade. It prepares timber and fuel for the needs of the State railways and for State departments, but otherwise sells its timber on the stump. Timber for sale is advertised for a month in the Government gazette and then sold at auction. Only in exceptional cases, when forests remain unsold after being put up to auction, is any other method of sale resorted to; the price in such cases is not reduced.

Canadian Association's Educational Activities

Lectures of the Canadian Forestry Association between April 1 and December 1, 1926, reached audiences totaling 282,414. In the month of November alone lectures in the schools of Quebec and Ontario reached 11,500 children. The association's magazine, Illustrated Canadian Forest and Outdoors, with its French edition, La Forêt et la Ferme, is being sent regularly to more than 10,000 schools.

Remarkable Cork Tree

A cork tree that returned 736 francs' worth of cork in 17 years is described by G. Saunie in the October number of the Revue des Eaux et Forets. This tree measures 5.65 meters in circumference at 1 meter above the ground and is situated in the commune of Saint-Jean-Pla-de-Cors in the Pyrenees Orientales. In 1908 cork amounting to 360 kilos was taken from the tree and in 1925 a harvest of 368 kilos was taken. The increase in quantity was due to the growth of the trunk, as the bark was removed from exactly the same place the second time as the first. Although it takes more than a century to produce such a tree, cork trees begin to make returns as early as at 20 or 30 years of age, according to M. Saunie, and the revenues increase from year to year. He suggests that heads of families might consider planting cork trees where possible, to provide income for their descendants.

Personals

Prof. L. J. Young, acting head of the forestry department of the University of Michigan, has been appointed director of the Michigan Department of Conservation, succeeding John Baird.

Charles C. Deam has resigned as State forester of Indiana in order to complete his series of botanical publications, of which two volumes entitled "The Trees of Indiana" and "The Shrubs of Indiana" have already appeared. His next book will be "The Grasses of Indiana." Ralph F. Wilcox, assistant State forester, has been named by the Indiana Conservation Commission as acting State forester.

Shirley Allen, forester of the American Forestry Association, is serving as secretary of the American Forest Week Committee of 1927.

Charles G. Dunwoody, director of the department of conservation of the California Development Association, has accepted the chairmanship of the national conservation committee of the American Legion.

L. D. Gilbert, secretary and general manager of the Southern Pine Lumber Co., Texarkana, has been made chairman of the forestry committee of the East Texas Chamber of Commerce. Assisting Mr. Gilbert on the committee are H. R. Safford, executive vice president, Missouri Pacific Lines, Houston; Senator I. D. Fairchild, Lufkin; O. M. Stone, Jasper; E. L. Kurth, Keltys; John Kunkle, Clarksville; and T. B. Warden, Jefferson.

Harry E. Weston has resigned as assistant professor of forest chemistry, New York State College of Forestry, to accept a position with Thomas H. Savey, jr., of Chicago, consulting engineer specializing in machinery for pulp and paper mills. He is succeeded by Floyd C. Peterson, a graduate of the college.

R. M. Brown has resigned as assistant silviculturist, Lake States Forest Experiment Station, to join the faculty of the forest school of the University of Minnesota. He will teach forest mensuration.

W. R. Adams of the 1926 class of the New York State College of Forestry has joined the faculty of the University of Vermont as an instructor in forestry.

Prof. Emanuel Fritz of the forestry division of the University of California is on sabbatical leave for the year 1927. He will spend the entire year in the United States, studying various problems of the lumber industry and at the same time representing the California White and Sugar Pine Manufacturers' Association in the various lumber-consuming centers which he visits. Professor Fritz has been teaching wood technology and lumbering at the University of California since 1919.

Albert Benjamin Cone of Chicago has joined the staff of the National Committee on Wood Utilization of the United States Department of Commerce as research director.

William Finlayson, K. C., of Midland, Ontario, has succeeded Hon. James Lyons as minister of lands and forests in the Ontario government. Mr. Finlayson has been a member of the provincial legislature since 1923.

Dr. C. A. Schenck, of Darmstadt, Germany, gave a series of lectures at the Pennsylvania State Forest School, December 15 to 18. He planned to go in January to Missoula, Mont., to give a three-month lecture course.

Eric Ostlin, of Sweden, has been brought by the American-Scandinavian Foundation to the United States, where he will spend about a year. He will visit the eastern forest experiment stations and the Forest Products Laboratory, and plans to see some of the better wood-using plants and industries such as those clustered about Cloquet and Bogalusa. Mr. Ostlin has been directing a systematic survey of all forest land in Sweden, which was begun about 10 years ago to determine whether Sweden was overcutting its annual growth, and which so far indicates that it is undercutting.

Prof. Toyokazu Suzuki, of the Agricultural and Forestry College at Suigen, Korea, is visiting the United States in the course of a trip around the world. He is spending several months at Cornell and has visited the Washington office of the United States Forest Service, where he made some inquiries into the timber sale and forest management methods of the service and the work of the forest experiment stations, one or more of which he will visit. He expects to spend two or three months in Germany and a similar period in Russia.

Officers elected by the Southern Forest Research Advisory Council in October are: Senator Henry E. Hardtner, chairman; Maj. J. G. Lee, vice chairman; and R. D. Forbes, secretary.

The officers and board of directors of the Empire State Forest Products Association were reelected at the association's twenty-first annual meeting, held October 7 at Ithaca, N. Y. George W. Sisson, jr., of Potsdam, is president; John N. Carlisle, Watertown, vice president; W. Clyde Sykes, Conifer, treasurer; and A. B. Recknagel, Albany, forester and secretary.

Officers elected by the North Pacific Section, Society of American Foresters, at its November 23 meeting are: C. S. Chapman, Tacoma, chairman; A. H. Hodgson, secretary-treasurer; Dr. J. S. Boyce, member of executive committee.

Officers of the Intermountain Section of the Society of American Foresters elected in December are: C. L. Forsling, president; R. E. Gery, vice president; and Lyle F. Watts, secretary-treasurer.

J. Gilbert Borton of Woodstown, N. J., State senator from Salem County, has been appointed land agent of the forestry division of the New Jersey Department of Conservation and Development.

Jack O'Rourke Shank, a graduate of the College of Forestry of the University of Washington in the class of 1922, has gone to Kiseran, Sumatra, as silviculturist for the United States Rubber Co.

W. Goodrich Jones, president emeritus of the Texas Forestry Association, has for the past two years been serving as the unsalaried city forester of Waco, Tex. Beautiful street trees and parks in Temple, Tex., are the mark of his previous residence there. Recently Mr. Jones has published a 4-page leaflet entitled "The A-B-C of City Forestry."

Correction: Dr. Louis J. Pessin has joined the staff of the Southern Forest Experiment Station, not that of the Appalachian Forest Experiment Station as was stated in the FOREST WORKER for November, 1926.

Bibliography

Trees and Shrubs of Mexico

By GEORGE B. SUDWORTH, U. S. Forest Service

"Trees and Shrubs of Mexico" is the title of a monumental work just completed by Paul C. Standley, associate curator of the United States National Herbarium. It is volume 23 of the contributions from the United States National Herbarium and comprises five parts which appeared serially from 1920 to 1926, part 5, the concluding number, having just been published. The completed volume represents the careful study of an enormous number of herbarium specimens, begun in 1918 and concluded in 1925. Altogether, the volume contains 4,525 pages, exclusive of indices, descriptive of all the known woody plants of Mexico, of which it is estimated there are some 5,700 different species and varieties.

The material studied comprises thousands of dried specimens now preserved in the National Herbarium. A large part of this material was obtained by collectors sent into Mexico by the National Museum and the United States Department of Agriculture. To these specimens have been added collections made by some 52 other botanists who travled and collected plants in Mexico. Among the well-known older collectors, now gone, once closely identified with the discovery of many of the woody plants of our Southwest, were F. S. Brandegee, J. L. Berlandier, Dr. Charles Mohre, Edward Palmer, and C. C. Parry.

The plan of Mr. Standley's work includes a survey of the growth of interest in Mexican plant life, and of those who were instrumental in promoting a knowledge of it, especially of the plants of economic importance. Brief descriptions are given of the family and generic groups, together with keys enabling the student to classify unknown trees and shrubs. The technical and vernacular names of the different species and varieties and brief descriptions of their distinguishing characteristics are given. So far as it is known the range is briefly noted, and mention is made of the locality from which the type specimen of a species was first obtained. Careful attention is also given to recording the economic uses of the different plants, particularly the uses made of the wood and other products of trees and shrubs.

Having to depend very largely upon the collectors' labels and scanty field notes accompanying dried specimens to determine what species are trees and what are shrubs, the author had much difficulty in clearing up this point. It is a notable fact that collectors, even now, too often neglect to note the size of plants from which specimens are taken.

It is natural to expect that there should be a close relationship with the trees and shrubs of our southwestern sections bordering Mexico; in fact, such commercially important groups of trees as Pinus, Abies Pseudotsuga, Taxodium, Juniperus, Libocedrus, Cupressus, Quercus, Salix, Populus, and Juglans are sometimes represented on both dises of the international line by the same species. In some cases it is difficult to say now in which country the tree originated. Thus, 11 species of pines found within our border occur also in Mexico; 2 species of Pseudotsuga occur in both countries; Abies concolor, common to our Rocky Mountain and Pacific slope mountains, occurs in northern Mexico; 4 species of Juniperus occur both in our Southwest and in northern Mexico; 2 species of Cupressus occur in these sections; and Libocedrus decurrens, common on the west slopes of the California Sierras, grows also in Mexico.

The largest group of hardwoods found in Mexico is Quercus. Mexico has 258 species, and 11 of these occur within our Southwest border. Ninety-three of Mexico's oaks have been known to science for 50 or 60 years, but 164 of them have remained unknown until very recently.

The great interest Mr. Standley's splendid work has for foresters is that it presents for the first time a comprehensive means of becoming acquainted with Mexican trees likely to be of commercial value in the United States. Heretofore the great forest resources of Mexico have, as a whole, remained very imperfectly known, except to a few students of special plant groups such as conifers, oaks, mahogany, etc. Mexico has also been explored from time to time by lumber and naval stores interests to find what supplies are available. But little has been done to bring together and publish the information so collected. Even if it had been brought together and given to the public, it must necessarily have lacked full usefulness

because the writers would have had to depend on local vernacular names in discussing Mexican trees, and these would have been most confusing. In all such accounts there would have been wanting the definite work of the trained botanist, now presented in this volume.

A National Program of Forest Research

By L. C. EVERARD, U. S. Forest Service

This volume is more than a program; it is a compendium of what has been done, what is being done, and what needs to be done in forest research. Its publication marks a distinct turning point in the history of forestry in America. Although much research in forestry has been done in the past, it has been what might be called pioneer research—research that was concerned no more with revealing facts and principles in the field of forestry and wood utilization than with finding out what forest research could do and what it ought to do. Before a concerted attack could be made on the forest problems of America it was necessary to make surveys of the field with whatever instruments and methods the surveyor could devise. The preparation of this report means that the preliminary surveys have been made and forest research is ready for organization on a national scale; the various lines of work are ready for coordination; the objectives and the methods for arriving at them can be set down with sufficient definiteness for an immediate development of the attack as soon as the necessary funds are available.

The volume contains a statement of the forest problem of the United States, which involves making full use of one-fourth of the entire land area for the production of timber, naval stores, forage, etc., and for other related purposes; supplying wood and other forest products to meet American requirements, which amount to nearly half the world requirements; and maintaining American forest industries, which rank fourth among all the industries of the Nation. It points out the ways and means of solving this problem through research, the funds needed for carrying on the work, and the various fields that would be covered in a coordinated program, including such subjects as forest management, forest protection, forest range management, forest influences, wild life and recreation, utilization of wood and other forest products, and forest economics. A chapter on the research agencies that would be included in a national program includes sections on existing agencies—Federal, State, educational, and industrial—and their work, additional agencies needed, the need for trained men, and the correlation and standardization of the work.

The volume was prepared by Earle H. Clapp, of the United States Forest Service, as the report of a special committee of the Washington Section of the Society of American Foresters. The other members of the committee are R. C. Hall, who recently returned to the United States Forest Service from the Bureau of Internal Revenue, and A. B. Hastings, of the United States Forest Service, who was assistant State forester of Virginia at the time the report was prepared. The purpose of the committee in issuing the report was to stimulate forest research in the United States, and to indicate what is most needed and what funds are necessary to carry on the work. The report was published by the American Tree Association for the Society of American Foresters. Those wishing to obtain copies should write to the secretary, Society of American Foresters, Atlantic Building, Washington, D. C.

Report of the Federal Power Commission

Construction was started during the past fiscal year on 20 new water-power projects which will have when completed an installation of 1,220,000 horsepower, or 40 per cent as much as the total placed under construction during the preceding five years. Among the important new developments are the development by the Alabama Power Co. on the Coosa River with 180,000 horsepower; that at the Falls of the Ohio at Louisville, Ky., with 135,000 horsepower; the Conowingo development of 473,000 horsepower on the Susquehanna River in Maryland and Pennsylvania; and five projects in California aggregating 417,000 horsepower. The total of plants placed in operation or under construction under license of the commission since July 1, 1920, is 3,900,000 horsepower.

These figures are taken from the sixth annual report of the Federal Power Commission, for the fiscal year ended June 30, 1926.

Of particular interest to foresters as well as others who have to consider problems of the coordination of outdoor recreation with economic development is a chapter on the relation of water-power development to recreational facilities.

Recent State Forestry Publications

"Making Farm Woodlands Pay," by John W. Keller, chief of the bureau of extension of the Pennsylvania Department of Forests and Waters, gives detailed instructions and suggestions for the care of farm woodlands in Pennsylvania and for cutting and marketing the timber. The booklet is well illustrated, and includes a valuable extension feature in 10 concrete examples of good profit in growing and selling timber.

"The Farm Woodlot in New Hampshire," Bulletin 30 of the extension service of the University of New Hampshire, by Prof. K. W. Woodward and Extension Forester Fletcher, treats comprehensively of the growth, cutting, and marketing of timber and of the chief silvicultural practices including planting, in the pine and hardwood sections of New Hampshire. Mature and immature timber are discussed separately. Some handy log rules and yield tables are included, and the bulletin is illustrated with photographs and drawings.

"Forests and Forestry in South Carolina" is the first local State bulletin covering broadly the subject

of forestry. Henry H. Tryon, extension forester, is the author. Mr. Tryon treats his subject with thoroughness and practicality. Not only does he tell what he thinks South Carolinians ought to know about their forests, but he has been careful to include answers to the inquiries he most often receives from them. The fire problem, forest management, and forest utilization are given special consideration. The bulletin is well illustrated with both photographs and graphs.

"Forestry: What It Is," by Page S. Bunker, State forester of Alabama, in 10 pages of text carries out the object thus explained in its preface:

A clear view of any major development contributing to the welfare of the individual, community, and Nation requires adherence to the main theme. This is especially true in the case of forestry which carries with it so many incidental benefits that its primary objects are sometimes obscured. It seems advisable, therefore, to recapitulate briefly the fundamental purposes of this essential industry.

Studies of the Humus Layers of Coniferous Forests

The German summary of the latest Swedish Research Institute publication, an article by Dr. Henrick Hesselman entitled "Studies of the humus layers of coniferous forests, their peculiarities, and their dependence upon silviculture," has been translated by P. R. Gast and Paul W. Stickle of the Northeastern Forest Experiment Station, with the assistance of Mrs. Gast. This article emphasizes the significance of nitrogen in the nutrition of the forest and shows the interrelations of buffer action to hydrogen-ion concentration, which are dependent upon the species origin of litter (oak leaves, spruce needles, etc.) and upon the lime-rich or lime-poor character of the soil. These factors determine the rate of decomposition of the litter and the availability of nitrogen. This translation consists of 50 closely typewritten pages. If the demand warrants, it will be mimeographed. Requests should be addressed to the Northeastern Forest Experiment Station, Amherst, Mass.

Forest Fires in Florida

"Forest Fires in Florida," the pamphlet published by the Florida Forestry Association in cooperation with the United States Forest Service under the provisions of the Clarke-McNary law, came off the press in December all dressed up in a fiery cover. The purpose of this first of the so-called section 1 reports is "to give the people of Florida information about the devastating effects of forest fires, to point out the dependence of the wood-using industries and of the people as a whole upon the forests, and to outline measures for fire prevention and control."

According to this bulletin the great need in Florida is to build up an antifire sentiment. It is recommended that the responsibility for this educational work be vested in a State forestry department. A basic forestry law is recommended by the Florida Forestry Association, the provisions of which are indorsed by the United States Forest Service.

The bulletin is being distributed by B. F. Williamson, president of the Florida Forestry Association. Requests for it should be addressed to him, at Gainesville, Fla., and not to the United States Forest Service.

Fire-Control Principles Codified

The principles of forest fire control have been codified by the eastern district office of the United States Forest Service and published in the form of loose sheets that are to become a part of the notebook of every forest officer in the district. The code has also been prepared in the form of a poster, 18 by 21 inches, which is to be given a conspicuous place in every district ranger's office. Any cooperating agency wishing copies of either notebook sheets or poster will be furnished with them on request. Requests should be addressed to the District Forester, Washington, D. C.

Fire Poster Available

An effective fire poster has been gotten out by the National Fire Protection Association in which pines are shown in silhouette against a red sky. The legend, lettered in white, is "Think and Save our Forests: Watch Smokes, Matches, Camp Fires." The dimensions are 12 by 16 inches. Copies can be obtained for $1.50 per hundred and $13.50 per thousand from the National Fire Protection Association, 40 Central Street, Boston, Mass.

Recent Publications of the Forest Service

Department Bulletin 863, Forestry Lessons in Home Woodlands (reprint).

Miscellaneous Circulars: 44, Forest Fire Control (reprint); 71, National Forest Resources of Utah.

Yearbook separate, Forestry and Forest Products.

Farmers' Bulletin 1417, Idle Land and Costly Timber (reprint).

Map folders: National Forests of the East and South; Bitterroot; Madison; Manzano; The Strip Notch Blaze; The National Forests of the Southern Appalachians in Relation to Principal Motor Highways.

National Forest Administrative Maps: ¼ inch, Beaverhead, Cache, and Sawtooth; ½ inch, Florida.

Atlas folio, Modoc (Warner Mountain Division).

District map, National Forest District 6 (in two parts, Oregon and Washington).

Index map of the United States.

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